CLAIMS

What is claimed is:

1. A method for promoting differentiation of a neural stem cell or a neural progenitor cell into a differentiated neural cell, comprising inhibiting ATF5 in the cell.

2. The method of claim 1, further comprising the step of contacting the neural stem cell or neural progenitor cell with at least one neurotrophic factor.

3. The method of claim 1, wherein the differentiated neural cell is selected from the group consisting of an astrocyte, an astroglial cell, a neuron, an oligodendrocyte, an oligodendroglial cell, and a Schwann cell.

4. The method of claim 1, wherein the differentiated neural cell expresses enhanced green fluorescent protein (eGFP).

5. The method of claim 1, wherein ATF5 is inhibited in the neural stem cell or neural progenitor cell by contacting the cell with an inhibitor of ATF5.

6. The method of claim 1, wherein ATF5 is inhibited in the neural stem cell or neural progenitor cell *in vivo* in a subject.

7. The method of claim 1, wherein ATF5 is inhibited in the neural stem cell or neural progenitor cell *in vitro*.

8. The method of claim 7, further comprising the step of transplanting the differentiated neural cell into a subject.

9. The method of claim 8, wherein the subject is an embryo.

10. The method of claim 8, wherein the subject is a human.

11.   The method of claim 8, wherein the subject has nervous tissue degeneration.

12.   A differentiated neural cell produced by the method of claim 1.

13.   The differentiated neural cell of claim 12, which expresses enhanced green fluorescent protein (eGFP).

14.   A method for producing differentiated neural cells, comprising the steps of:

        (a)   obtaining or generating a culture of neural stem cells or neural progenitor cells;

        (b)   contacting the culture of neural stem cells or neural progenitor cells with an amount of an ATF5 inhibitor effective to produce differentiated neural cells; and

        (c)   optionally, contacting the differentiated neural cells with at least one neurotrophic factor.

15.   The method of claim 14, wherein steps (b)-(c) are performed *in vivo* in a subject.

16.   The method of claim 14, wherein one or more of steps (b) and (c) are performed *in vitro*.

17.   The method of claim 16, further comprising the step of transplanting the differentiated neural cells into a subject.

18.   A population of cells, comprising the differentiated neural cells produced by the method of claim 14.

19.   A method for treating nervous tissue degeneration in a subject in need of treatment, comprising the steps of:

        (a)   obtaining or generating a culture of neural stem cells or neural progenitor cells;

(b)   contacting the culture of neural stem cells or neural progenitor cells with an amount of an ATF5 inhibitor effective to produce differentiated neural cells;

(c)   optionally, contacting the differentiated neural cells with at least one neurotrophic factor; and

(d)   transplanting the differentiated neural cells into the subject in an amount effective to treat the nervous tissue degeneration.

20.   A method for isolating a population of differentiated neural cells, comprising the steps of:

(a)   obtaining or generating a culture of neural stem cells or neural progenitor cells that express enhanced green fluorescent protein (eGFP);

(b)   contacting the culture of neural stem cells or neural progenitor cells with an amount of an ATF5 inhibitor effective to produce differentiated neural cells that express eGFP;

(c)   optionally, contacting the differentiated neural cells with at least one neurotrophic factor;

(d)   detecting expression of eGFP in the differentiated neural cells; and

(e)   isolating the differentiated neural cells that express eGFP.

21.   A method for identifying an agent for use in treating a condition associated with nervous tissue degeneration, comprising the steps of:

(a)   obtaining or generating a culture of neural stem cells or neural progenitor cells;

(b)   contacting the neural stem cells or neural progenitor cells with an amount of an ATF5 inhibitor effective to produce neurons, wherein some or all of the neurons are degenerated;

(c)   contacting the degenerated neurons with a candidate agent; and

(d)   determining if the agent enhances regeneration or survival of some or all of the degenerated neurons.

22.   A method for suppressing differentiation of neural stem cells or neural progenitor cells into differentiated neural cells, comprising contacting the neural stem cells or

neural progenitor cells with an amount of ATF5 effective to suppress differentiation in the neural stem cells or neural progenitor cells.

23.   A therapeutic composition, comprising:

(a)   a nucleic acid encoding an ATF5 inhibitor;

(b)   a vector; and

(c)   optionally, a pharmaceutically-acceptable carrier.

24.   A method for identifying an agent which inhibits ATF5, comprising the steps of:

(a)   contacting a candidate agent with ATF5, in the presence of CRE; and

(b)   assessing the ability of the candidate agent to inhibit interaction between ATF5 and CRE.

25.   The method of claim 24, further comprising the steps of:

(c)   contacting the candidate agent with neural stem cells or neural progenitor cells containing ATF5; and

(d)   determining if the agent has an effect on an ATF5-associated biological event in the cells.

26.   The method of claim 25, wherein the neural stem cells or neural progenitor cells express luciferase.

27.   The agent identified by the method of claim 25.

28.   A method for determining whether a subject has a neural tumor, comprising assaying a diagnostic sample of the subject for ATF5, wherein detection of an ATF5 level elevated above normal is diagnostic of a neural tumor in the subject.

29.   A method for assessing the efficacy of therapy to treat a neural tumor in a subject who has undergone or is undergoing treatment for a neural tumor, comprising assaying a diagnostic sample of the subject for ATF5, wherein a normal level of ATF5 in the

diagnostic sample is indicative of successful therapy to treat the neural tumor, and a level of ATF5 elevated above normal in the diagnostic sample is indicative of a need to continue therapy to treat the neural tumor.

5   30.   A method for assessing the prognosis of a subject who has a neural tumor, comprising assaying a diagnostic sample of the subject for ATF5, wherein the subject's prognosis improves with a decreased level of ATF5 in the diagnostic sample, and the subject's prognosis worsens with an increased level of ATF5 in the diagnostic sample.

10   31.   A kit for use in detecting a neural tumor, comprising:

    (a)   an ATF5-specific agent; and

    (b)   reagents suitable for detecting ATF5;

wherein the ATF5 specific agent is selected from the group consisting of an agent reactive with ATF5 and a nucleic acid probe which hybridizes to nucleic acid encoding

15 ATF5.